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Notice of Allowability	Application No.	Applicant(s)	
	09/845,856	DANDEKAR ET AL.	
	Examiner	Art Unit	
	Thuan D. Dang	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interview on 12/21/04.
2. ☒ The allowed claim(s) is/are 25-27.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20041222</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Tyus on 12/21/04.

The application has been amended as follows:

Claims 1 and 11-24 have been replaced by newly added claims 25-27:

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Claim 25

A process for producing ethylbenzene comprising the steps of:

- (a) providing a reactor with an alkylation catalyst comprising a porous crystalline inorganic oxide material of MCM-22 and 0.5 to 5 weight percent phosphorous;
- (b) supplying said reactor with benzene and ethylene to produce said ethylbenzene under alkylation conditions; and

wherein said alkylation catalyst has a higher selectivity towards said ethylbenzene than said alkylation catalyst that is unmodified by phosphorus under equivalent alkylation conditions.

Claim 26

A process for producing cumene comprising the steps of:

- (a) providing a reactor with an alkylation catalyst comprising a porous crystalline inorganic oxide material of MCM-56 and 0.1 to about 0.5 weight percent phosphorous;
- (b) supplying said reactor with benzene and propylene to produce said cumene under alkylation conditions; and

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wherein said alkylation catalyst has a higher selectivity towards said cumene than said alkylation catalyst that is unmodified by phosphorus under equivalent alkylation conditions.

Claim 27

A process for producing a monoalkylaromatic compound comprising the steps of:

- (a) contacting an alkylation catalyst with mixture of steam and air at a temperature of up to about 1000 °F (538 °C), said alkylation catalyst comprising a porous crystalline inorganic oxide material of MCM-56 and 0.1 to about 0.5 weight percent phosphorous to produce a regenerated alkylation catalyst;
- (b) supplying a reactor with an alkylatable alkylaromatic compound and an alkylating agent in the presence of said regenerated alkylation catalyst to produce said monoalkylaromatic compound under alkylation conditions;

wherein said regenerated alkylation catalyst has a higher activity and higher selectivity towards said monoalkylaromatic compound than said regenerated alkylation catalyst that is unmodified by phosphorus under equivalent alkylation conditions.

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The following is an examiner's statement of reasons for allowance: the prior art of record does not disclose a process of alkylation of benzene with ethylene to produce ethylbenzene in the presence a catalyst containing MCM-22 and from 0.5 to 5 wt% of phosphorus and a process of alkylation of benzene with propylene to produce cumene in the presence of a catalyst containing MCM-56 and from 0.1 to about 0.5 wt% of phosphorus. The closest art - Degnan (5,536,894) – discloses using a catalyst containing MCM-56 and 2.2 wt% of phosphorus for several reactions including alkylation (abstract; col. 10, lines 38-45; example 15). However, Degnan does not recognize that the amount of phosphorus as called in the present claims is critical for the selectivity of the desired product and the activity of the catalyst (see examples).

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

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A handwritten signature in black ink, appearing to be 'Thuan D. Dang', written in a cursive style with a long horizontal stroke extending to the right.